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SOVIET FARMERS

by

Anna Louise Strong

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National Council of American-Soviet Friendship

NOTE: *This pamphlet is intended as a popular, non-technical statement of some of the leading features and achievements of Soviet agriculture. Special emphasis is given to the important part played by Soviet farmers in winning the war. American farmers, who have made such a great contribution individually and through their organizations to the defeat of the Axis, will be particularly interested in learning how the Soviet farmers have participated in bringing about Hitler's downfall.*

Another pamphlet in preparation by the National Council of American-Soviet Friendship will deal with the more technical aspects of Soviet agriculture.

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Anna Louise Strong

Published by: THE NATIONAL COUNCIL
OF AMERICAN-SOVIET FRIENDSHIP
232 MADISON AVE., NEW YORK 16, N. Y.

THE farming people of the United States and Russia have many common ties.

The many similarities of climate and soil which condition agricultural production in the United States and Russia are well known. Much of Russia, moreover, is a country of recent agricultural colonization like our own West, only in Russia it was the trek eastward to settle the vast spaces beyond the Don and Volga and the Urals.

We introduced a number of valuable Russian wheat varieties and the Russians introduced American cotton varieties, with consequent important results for the American wheat and Russian cotton industry. It was to the United States as a model and a source of supply that the Russians turned when they began to introduce power farming in their country.

During the present war, seed contributed by American farmers and seedmen and lend-leased by our government is helping to rehabilitate the regions of the Soviet Union devastated by the enemy. Lend-lease food produced by American farmers is helping to maintain adequate rations for the heroic Red Army.

I sincerely hope that with the victory over our common enemy and the return of peace, the wounds inflicted by the Nazis on Russian agriculture and farm population will soon be healed and that cooperation on the scientific level which we in the United States Department of Agriculture have always encouraged, will flourish more than ever before to the mutual benefit of the American and Russian farmers.

CLAUDE R. WICKARD
Secretary of Agriculture.

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A collective farm woman with a guerrilla band deep in the woods behind the German lines, helps to provide nourishment for the wounded.

Soviet Farmers

I

When Hitler Struck

WHEN Hitler struck, the farms in the north of the USSR were ending their sowing and the farms of the south were beginning their harvest. By radio into every far-flung hamlet came the word that the greatest war in history was on.

Would collective farming, successful in peacetime, prove able to meet the test of war? In other European lands the farm population had fled in panic and later, creeping back to its individual acres, had produced for the Nazis. But as the Germans poured into the Ukraine, a race began between them and the Soviet farmers for the grain harvest. Teachers, students, city workers and the Red Army all helped get in the crops. By September 1, nine-tenths of the Ukraine grain was harvested; by September 10, before the Germans reached the rich heart of the Ukraine, some 60 per cent of the grain had been removed from the areas near the front.

Then crops began to "change addresses," as the Russians said. Millions of farmers moved eastward taking their skills and their seeds. Before leaving they destroyed all that might benefit the enemy, delivered their livestock to the Red Army and got receipts. A thousand or two thousand miles to the east, their hosts met them. The hosts were other farming families, part of the great collective farm system. The guests received shelter, food to live on till harvest, garden plots and jobs on the eastern farms, and sometimes a cow and chickens for family use. But none of this was charity. It was credit against their work share in the coming crop.

Not all went eastward. Many remained behind from choice or necessity. The able-bodied went into the woods as "partisan warriors," attacking the Nazis from the rear. Although known as guerrillas, they

were unlike any guerrillas the world has known. They were equipped with rifles, machine-guns, mine-throwers, flame-throwers, and divided into infantry, cavalry, artillery, engineers. They communicated with the Red Army by two-way radio and by messenger plane. Some farmer units had their own aircraft. While their villages remained under the German yoke they carried on consistent warfare against the enemy. When the Red Armies returned westward, they joined with them in the liberating of their villages, and the day after were back at their plows.

The scientists and resourceful farmers of the Soviet collectives aided in another "change of addresses." In the north, flax-growing was introduced, while cotton growers of the south sowed wheat to make up for losses in the occupied regions. Sugar beets found a new home in the Caucasus, and sugar cane was introduced in Kazakhstan.

The Test of War

To understand the test Soviet agriculture had to face, certain general facts about the war as it affected Russia should be borne in mind. For three years the Soviet people withstood more enemy soldiers than tsarist Russia, France, Britain and America combined during the first World War. Of the Kaiser's 220 divisions, 85 marched against Russia, plus Austro-Hungarian divisions equivalent in fire-power to about forty German divisions, and were enough to bring tsarist Russia to collapse and famine. Of Hitler's 256 German divisions, 185 marched against Russia with enough satellite troops to bring it up to between 240 and 257 divisions.

At the height of the Nazi penetration, an area of 600,000 square miles of Russia, including the most productive farm lands producing about 40 per cent of Russia's farm output, was occupied. The area included two-fifths of the grain lands, half the potato fields, 85 per cent of the sugar beet area, 60 per cent of the area sown to sunflowers, Russia's chief source of vegetable oil. The loss was equal to what the United States would suffer if all of Ohio, Indiana, Illinois, Iowa, Missouri, Wisconsin and Southern Minnesota were in enemy hands.*

By Hitler's seizure of the bread-basket and sugar-bowl of Russia, he hoped to feed his world-conquest, for which Western Europe is

* Estimate by Prof. M. L. Wilson, Director of Extension Work, U. S. Dept. of Agriculture.

insufficient. For two years Hitler held the Soviet bread-basket and sugar-bowl but he did not get the bread and sugar—and the Soviet Union, though reduced to war rations—did not starve.

The Life of a Front Line Farm

Let us see how the typical collective farm in the front line regions met the test of war. Every farm had its working brigade of fifty to a hundred able-bodied men and women, long accustomed to team work. These could become labor battalions for the army, bringing their own field kitchens, food and cooks. Every farm had its defense organization and its sport clubs, its sharp-shooters with weapons; here was the fighting group already formed. Every farm had its summer nursery managed by the older mothers with the aid of nurses; here was the group that evacuated the children to the rear.

At first this typical Ukrainian collective farm was in the immediate rear of the Red Army. Through its long street rolled munition trucks for the front. In case of need, the machine shop was handy for repair work. Forty of the farmers worked full time repairing roads for the army trucks. During a lull in the fighting, fifty Red Army men, in return, harvested forty acres of wheat and fifty acres of peas. Meantime gangs of farm girls and women, under direction of Red Army sappers, dug trenches and camouflaged them with foliage.

Then the Red Army was forced to retreat. The farm was informed. Young farmers entered the granary, loaded the last nine trucks and sent them to the railway station camouflaged under green boughs. The trucks were turned over to the Red Army in return for receipts. Four tons of barley and vetch that could not be removed, were burned. The tractors plowed down the sugar beets. The mechanics broke up the fuel tank; the blacksmiths destroyed harvester and thresher, after burying the most expensive parts well greased, to preserve them. The best horses were hidden in the woods for the farmer guerrillas. Fourteen fattened pigs were slaughtered for the Red Army, the rest delivered to the railway point.

The Trek of a Machine and Tractor Station

At the same time the Machine and Tractor Station that served the farms in this district took its equipment into the interior. Seventy

tractors led the way, followed by truckloads of motors, harvesters, lathes. Behind them as they went they heard the thunder of artillery. Enemy planes attacked and killed several members of their column. They buried their dead and journeyed on. For days they crossed the Russian plains, then circled Stalingrad and headed south. A thousand miles to the southeast near the Persian border they reached their destination. Jumping from their tractors, they picked up handfuls of soil, and declared it good.

Then the reception committee of local farmers who had come to meet them, handed them a large box of seed. "American seed," they said. "Americans sent new seed for this new soil!" American seeds had also changed addresses in this global war!

Fighting Farmers

Two or three anecdotes will show how far the fighting Soviet farmers of today have changed from the once illiterate "muzhik." A farmer discovered a German field telephone line, tapped it, and carried the connecting wire across the front to Red Army headquarters. Red Army men, listening to the German plans, were able to smash them. What old-style peasant could have tapped a telephone line?

By a sudden dawn attack a group of farmer fighters captured six German airplanes on the ground. They destroyed five. The sixth was flown to the Red Army by a farmer, who in civil life had taken flying courses as a hobby.

A sixteen year old village boy discovered eight German tanks in a gully. The fighting farmers reconnoitering realized that the tanks were out of gas and awaiting supplies. They organized an attack by three groups: gasoline throwers, riflemen and tractor-drivers. The gasoline throwers sent the four end tanks up in flames. The twelve Germans who jumped out of the middle four tanks were shot by the riflemen. The four uninjured tanks were then driven off to the woods by the tractor-drivers.

II

War Against Hunger

WHILE spectacular deeds like these were wearing down the Hitler troops on the 2000 mile front, the farmers of the unoccupied regions carried on an equally important war. It was the war of the Russian people against hunger. The Nazi occupation of the nation's most fertile farming lands was a dangerous threat. No doubt the Germans counted on a Soviet collapse through hunger.

The threat was met by the Russian farmers. "Plant new areas! Increase fertility!" were their slogans. They carried them out though the Red Army had taken the best of the manpower, many of the trucks and tractors and much of the liquid fuel. It was mainly women, children, old men and cripples who fought the war against famine. The farm women however, included eleven million specialists!

In the last war all branches of Russian agriculture declined and the peasants were left destitute. But the collective farms have shown their vitality by increasing production under unimaginable obstacles. Take for example the Gorky region, an important Central Russian agricultural area. In the first years of the last war with its able-bodied men away, its horses and livestock decimated for the army's use, its fields were turned to wasteland and cattle raising declined catastrophically. Its cultivated area slumped by over 500,000 acres.

In the present war, however, the cultivated area in this same region *increased* by almost 400,000 acres in two years of war, and all yields were improved. During the war the number of cows in this region has increased by 67 per cent and pigs by 118 per cent. The tractors and horses turned over to the army were replaced by oxen. The men at the front were replaced by women and old people who achieved all this by putting in intensive work at long hours. Gorky region was no exception. Everywhere behind the lines the Soviet farms intensified

their work to make up for the loss of production in the occupied regions.

In 1940, before the war, the Karpov family in the Urals had earned 654 "workdays" by joint labor, of which the man had earned 456, the wife 133 and the two boys in the early teens 65. The father went to war, yet in 1942 the Karpov family, accomplished 673 workdays, Mrs. Karpov raised her 133 to 387, and the two boys raised their 65 to 287.

Russia's collective farms were run by millions of Karpov families. In the desperate autumn of 1941, they sowed to winter crops four million acres more than were sown in the same area the previous year. In 1942 the acreage increase was 6,500,000 acres above the 4 million of 1941 and in 1943 there was a further increase of 16,000,000 acres.

In 1943, despite Nazi occupation, the total crop area of the Soviet Union was 26 per cent larger than in 1913, and 39 per cent larger than in 1916, also the third year of a devastating war. And despite the loss to the farms of skilled manpower, each collective farmer cultivated twice the average area the Russian farmer cultivated in 1913.

The Soviet People's Rations

It was a grim job, this war against hunger. The Red Army got its three squares a day and nobody grudged them. But most of Russia's farmers went without sugar for two years. When American lard reached Russia, the housewives used it for a bread-spread; it was far too precious for cooking. Civilian Russia was on an iron diet of 1600 calories, as compared with 2500 in wartime Britain and 3000 in wartime America.

On that diet the Russian people worked twelve, thirteen, fourteen hours a day. It was worst of all in Leningrad. There during the siege people lived on five slices of black bread and two glasses of hot water a day. Yet on that food Leningrad worked, produced munitions, fought back the Germans. More people died of hunger in Leningrad than of German bombs. In the rest of Russia people died also, not exactly of hunger, but of working too hard on too little food. Just as the Red Army was driven back by the German onslaught so the Russian people were driven back in the war with hunger. And just as the Red Army kept its fighting organization unbroken until it was able to turn the tide toward victory, so the Russian people held their ranks unbroken by hunger until that tide also turned.

Women and Children Pitch in

In the winter of 1941-42, 285,000 new tractor drivers were trained and 49,000 combine operators. They were women whose men had gone to war. In the same winter the children in all the seventh, eighth, ninth and tenth grades, all over Russia, took special farming courses, preparing to help the farms.

In February and March the children's field-groups, already organized, began corresponding with the farms to which they were going. In March medical examinations were made, to tell what work each child might do without injury to health. Few children were needed in the plowing season. They went in June, boys and girls separately, the schools closed two weeks early to let them go. That summer 3,505,348 children with 150,096 teachers as leaders, did a total of 108,350,497 grown-up "work-days" on the cooperative farms.

Out on the farms the slogans were: "Save fuel . . . Get maximum acreage from every gallon of gas." Seeds and fertilizer were transported by sleds in winter, sometimes by horse-power, often by woman-power, to save gasoline. Cows that were not good milkers were harnessed to harrows to save fuel. Thousands of tractors were refitted with gas generators using local fuels—wood, lignite and peat. A woman named Darya won fame by working 2710 acres per tractor, while saving 1500 gallons of fuel; it was done by a steady driving pace of almost no stops, and constant care for the machines. A woman named Piatnitsa became a celebrity by reaping 4500 acres with her combine while saving 500 gallons of fuel.

Ten million city workers planted victory gardens. Workers also went out as repair gangs to the farm area. One Siberian factory, which sent twenty repair gangs to its "adopted" farm region, wrote a letter saying: "It is not easy to spare these skilled workers from our factory, when so many have gone to the front, and our orders from the front for war supplies press night and day. But we pledge to make up for their absence by increased productivity and we expect you to make good with the food."

Through such efforts the battle against hunger was won.

The Great Rebuilding

At last the tide turned on the long front of battle. Near Moscow in the winter of 1941-42 the farmers began to go back to the lands the

Nazis had destroyed. They found a total devastation such as men have not seen in all history. All buildings burnt; all livestock slaughtered; all able-bodied people taken away into slavery, apart from those who had died or been killed. The few survivors were exhausted and ill. Even the partisans wore homemade straw sandals, for their shoes were long worn out.

The Russian farmers who had made the great retreat eastward, now streamed back. The government railways provided free transportation. The government textile trusts provided some clothing. The Machine and Tractor Stations moved back with them. The spare parts that had been discreetly buried through the period of German rule were now dug up. As the Red Army advanced westward, trainloads of farm machinery advanced behind the Army, gifts from the eastern farms. The Rostov region alone received from the eastern regions 4000 tractors, of which 1400 were caterpillars, 400 combines and other machines in proportion.

Without a roof over their heads, the arriving farmers dug themselves into the frozen earth of winter and prepared for spring. And in all of the great untouched eastern country, every region that had a good harvest "adopted" one of the devastated districts and began a competition as to which should be first rebuilt.

On March 3, 1943, the Commissariat of Agriculture announced that it was already clear that in the regions liberated during the winter the cultivated area would be as large as before the war. In a district on the Don where the Germans had carried off or destroyed 6,000 horses, 7,000 cows and 50,000 sheep, the harvest after reoccupation was as large as in times of peace. In the North Caucasus, the Ivano irrigation system which waters 25,000 acres of rice lands, blown up by the retreating Germans in the winter of 1942-43, was restored for the spring sowing in 1943.

On March 3, 1943, the Commissariat of Agriculture announced the possession of the liberated regions by ordering the return of farm animals, sending back to the farmers 197,166 head of cattle, 50,939 horses and 341,421 sheep.

It will take long to rebuild the homes of these ruined areas. It will take longer to grow the orchards that the Nazis cut down. But if the devastation was the greatest in all history, the rebuilding will be the swiftest ever known.

Already those farmers in their sod dugouts are saying: "This time we shall build it all new! The Nazis made a clean sweep of everything. So now we shall build farms and cities from the earth up, all of the most modern kind."

They know that they can do it. For they have the organization, and the will and the knowledge. And they own the resources of one-sixth of the land surface of the earth.

Bringing in the harvest with combines on a North Caucasus collective farm.



III

These Are the Farmers of Russia

STEPHEN Baryshub is a farmer of Russia. He was born in 1861, the year that serfdom was abolished. (In America we were setting the slaves free.) In his youth he saw peasants flogged by the landlord's agents. He lived through three reigns and two Revolutions and was nearly 60 when the Soviets came to power. . . . At the age of 77 he stood as chairman on the platform in the Kremlin to open the Supreme Soviet of the Russian Republic.

Besides being an elected member of government, Baryshub runs an experimental farm on the Upper Volga. During the war 115 kinds of melons ripened in the old man's garden and 24 kinds of grapevines flourished on his terraces above the river. But in his 82nd year he had a new task: to move flax-growing north.

"The invaders have ruined our oldest flax districts and we must develop new bases. I have a new hard flax that resists frosts," he said. And flax moved into Siberia and the Far East.

Farmer Scientists and Engineers

In the same year of war a Russian scientific farmer evolved a new variety of rust-immune spring wheat and achieved the creation of perennial rye. In the same year Professor Dunin devised a graft method of planting potatoes that saved 36,000,000 pounds of seeds. In the same year plant specialist Lysenko organized half a million youngsters to gather potato eyes and plant them on 300,000 acres, saving 150,000 tons of potatoes for food. The scientist Bushinsky experimented with deep sub-soil plowing against the day when war ravaged soil could be restored to fertility.

In the same year of war a Russian farmer behind the German lines wrote a letter: "Let us carry food over the front to hungry Leningrad." The letter went from village to village until it had three thousand signatures. Then the farmers met in their villages, on an island of land completely surrounded by Germans, and elected their best people

to drive the carts. They took two hundred carts of food across the German lines to the besieged city. Thirty of the drivers were women. Three weeks later the 200 carts made a second trip.

In the same year of war the cotton growers of Central Asia eased the strain on the central grain supply by plowing two million virgin acres for wheat without interfering with their cotton. Sixty thousand farmers on the borders of Iran built a 35 mile irrigation canal over a divide to water 90,000 acres of rich soil. Farmers of Kirghizia, who ten years ago were illiterate nomads like early American Indians, built twenty electric power stations during two years of war.

These are the farmers of Russia. They carry on the agriculture of one-sixth of the earth's land surface. They are some twenty million farming families, united in 250,000 large scale farms, cooperatively owned and managed. They consider their system of collective power-farming the most advanced in the world. Together with the excellent Red Army, and the workers of the state-owned enterprises, they form the three great pillars of strength of modern fighting Russia.

"Cornerstone of Soviet Strategy"

Ambassador Davies thus describes the collective farms of Siberia, as he saw them from the air. "I shall never forget the impression. Flying at a height of 1000 to 1500 feet I saw a tremendous farming region . . . great fields bigger than our townships, in different colors of grain all planted with precision, orderly and well kept. . . . This hinterland of wealth—is the cornerstone of Soviet strategy."

Collective farming—since the early '30's the dominant type of farming in Russia—made possible the new type of "People's War." It gave the Russian farmers a mighty incentive for fighting and a highly efficient weapon with which to fight. Through the collective farms they were able to evacuate their harvest and much of their farm equipment in record time. Through the collective farms they set up those heroic bands of fighting farmers who attacked the Germans from the rear. Through their collective farms they fed the Russian people, even when a large section of their grain area was in enemy hands. Through their collective farms they were able to do what no other nation accomplished—to turn homeless refugees into immediate producers of wealth.

Stalin bore testimony to their devotion and effectiveness. In his address on November 7, 1943 he praised the "high degree of under-

standing of the common national interest" which the Soviet farmers showed. He added that, even when the country was deprived of the Ukraine, the Don and the Kuban valleys, the collective farms were able to supply the army and the country with food "without serious interruption." "Without the collective farming system, without the selfless labor of the men and women collective farmers, we could not have coped with this most difficult task."

From the Dark Past

What makes these achievements seem so miraculous is the dark past that constitutes their historical background.

In pre-revolutionary Russia nearly half the land belonged to the royal family, the monasteries and large landholders. The rest was scattered among some twenty million peasant families, few of whom lived on their own soil. They lived in villages where they had lived since the Middle Ages, when they were serfs on the big estates. They commonly had "land rights," rather than permanent title to particular pieces. Periodically the village lands would be redivided, ostensibly giving each family its share of the good land, the bad land, the distant land and all other kinds of land. A moderately well-off peasant would have fifteen to twenty acres, but it would be divided in three to thirty pieces, some of them miles away from his village hut. He would spend as much time walking to his pieces as in actual labor on the soil.

The strips were long and narrow. It was hard to turn a harrow on them. They were separated by hard boundary ridges, a breeding-place for weeds. The only good thing to be said for this kind of land division was that, when it was finally abolished by cooperative farming, it was easy to throw the narrow strips together and plow them with tractors from horizon to horizon. There were no fences or other structures to interfere.

The old peasant tools were crude, mostly wooden and commonly made at home. The commonest plow was a heavy wooden stick known as "sokha"; better-off peasants bought an iron blade and set it in this wooden plow. "I never saw a riding-plow in Russia," said George G. MacDowell, an American farmer who lived for fifteen years in Russia, helping to modernize the farms. "I have seen hundreds of primitive wooden sticks such as were used in Egypt when the pyramids were built. The Russians jumped from these to the tractors without going through the intervening stages."

Sowing was by hand-scattering, reaping by sickle or scythe, and threshing by stone rollers dragged by oxen over a dirt floor. Such methods left the Russian peasants poverty-stricken. One third of them had only a single horse while another third had no horse at all, renting an animal from wealthier neighbors and paying for it with as much as half the crop. Such poor peasants could not live off their land, so they also worked as farmhands for the wealthier neighbors who were known as "kulaks"—(fists)—because they combined farming with money-lending and property-lending.

There is no exact American equivalent for the "kulak," since America's more developed capitalism has specialized the functions of banking. Our banker-owned farms are perhaps the nearest equivalent. "Kulaks" represented the beginnings of capitalism in the feudal village. Kulaks farmed, but they made their largest income by lending property, by buying crops for resale to the cities, etc.

Illiteracy was general among the peasants; only one out of ten could read and write at the time of the Russian Revolution in 1917. They were sunk in superstition. They farmed according to the dates of the church festivals, relying on religious processions as the accepted way to get rain. With the gradual retarding of the Russian church calendar, the "religious" days for sowing were about a fortnight late. But no peasant dared break soil before the field-blessing, lest he incur bad luck. In case of drought or any emergency, the peasants marched with holy pictures while the priest sprinkled holy water, as they went singing and praying through the fields. The customs of the middle ages held in the countryside. George B. MacDowell describes a procession with ikons and torches in the North Caucasus, against a grasshopper pest. The cause of modern farming was greatly advanced when the younger farmers, with Paris green, kerosene, gas and airplanes, wiped out in three weeks the grasshoppers which such processions had not been able to do away with in three hundred years.

The First Cooperative Farms

Any outsider who looked at the Russian countryside in November 1927, ten years after the Russian Revolution, would have said that modern power-farming lay a century or more in the future. Actually it was just around the corner. Anybody could know it who troubled to read what Stalin and other Russian leaders were saying.

How could those narrow strips on which it was hard to turn a tractor, be modernized for power-farming? How could those weed-infested boundary ridges be plowed under, creating large farm areas for machines? The quick way, the just way and the prosperous way, the Russian leaders had decided, was to induce those twenty million peasants to combine their lands into large producers' cooperative farms. But a farm population takes convincing; and this needs education and time.

Immediately after the Revolution the new government had encouraged cooperative activity of every kind. Existing cooperative stores were given first chance at the output of state-owned factories and rapidly grew into the dominant form of rural trade. Cooperative processing plants, such as creameries, cheese factories, oil presses, starch factories, were helped by government credits, and became an important factor in the food industry of the nation. By 1926 the Russian consumer cooperatives with over ten million members had become the strongest cooperative movement in the world.

Cooperation in actual farm production is much more complicated and went at first more slowly. The government encouraged this also with easy credits and priorities on farm machinery. This attracted the poorer peasants who saw in the cooperatives a change to escape financial bondage to the usurious kulaks. Some modern farm practice seeped into the village through these early cooperatives. But since most of their first members were from the poorest peasantry, it took some years for them to overtake the standard of living of the moderately well-off peasant.

These early farming cooperatives were of several kinds, ranging from groups that combined temporarily to purchase a few machines to closely organized "communes" which held their lands, machines, livestock and even some living facilities in common, such as dining-rooms and nurseries. The form that most attracted the peasant families, however, lay midway between these extremes. It was called the *artel* or *kolkhoz* (collective farm). Its members kept their houses, garden plots and family livestock separately but pooled the fields that lay outside the village, and the draft animals and implements needed to work them. Members were assigned tasks under an elected management and drew harvest-shares in proportion to their work.

By November 1, 1927, ten years after the Revolution, the farm



A group of collective farmers visiting the great Agricultural Exhibit in Moscow.

families in various types of producers' cooperatives numbered 195,000, which would have been regarded as an achievement by the cooperative movements of most countries; but this was less than one farming family in every hundred on the vast lands of the USSR. Outwardly they made little difference to the picture of the Russian countryside; most of the land was still farmed with primitive tools in long thin strips. The cooperatives themselves were small groups, from ten to thirty families working an average of 150 crop acres. Often their lands were still scattered in many pieces among the village fields. This was far from what Soviet leaders regarded as the urgent need of the country—a basic change-over to mechanized farming through cooperative forms.

Modern mechanized farming seemed outwardly very distant. But the Russian government leaders, who kept close to the inner changes in the country, knew that hard-headed peasants everywhere were impressed with the success of the farm cooperatives, through which the village poor were attaining a standard of living equal to the best; that a usable form of the cooperative organization was already established, the "artel," or as it came to be known in its more developed form, the "kolkhoz," or collective farm. Since the nation's industries were at last ready to turn out tremendous numbers of new farm implements and would soon begin to produce tractors and complex machines they felt that the time had come at last for a nationwide drive for modern farming.

IV

The Great Drive for Modern Power Farming

THE drive for modern farming began at the end of 1927. Farm credits and supplies of machinery to collective farms were rapidly increased. A new tax law gave collectives special exemptions. A new land law provided that in any village land redivision, the collectives got first choice and might take their land all in one piece.

In the next six months the membership of the collective farms doubled. Four months later it had doubled again. By October 1, 1929—less than two years later—there were 1,919,000 families in collective farms, an almost tenfold growth. Then came the great "Collectivization Week" in October 1929, when thousands of organizers poured into the villages, backed by machinery and credits. Peasants swarmed into the collectives so fast they couldn't be listed.

By May 1930, nearly six million peasant families—a quarter of the farm population—had joined collective farms. The pace was so much faster than the government expected that it took five years to supply all the promised machines.

The new farms not only demanded more machinery than the country was producing, they needed more mechanics, bookkeepers and trained people than Russia had ever had. Working out farm practices for large scale farming for which the world had no precedent with peasants accustomed to strip farming, created terrific organization problems involving tractors, horses, oxen, and hundreds of men and women unaccustomed to joint work. Many farms failed, though the government helped them with repeated credits and later cancelled the debts. Discouraged members deserted farming for what seemed easier city jobs. For three years the new farms barely fed the country and the town populations went on iron rations of scanty bread.

On the other hand, millions of city workers in thousands of local campaigns poured into the country districts to help out the farmers in special emergencies. They knew that Russia's mediaeval agriculture

held back the nation; that only with modern farms could Russia be prosperous and secure. I personally drove four mechanics for a week-end of volunteer help when the flax-sowing of the Moscow district was threatened. My auto was part of a general campaign involving hundreds of autos and thousands of mechanics. The four men that I took worked 36 hours on end repairing tractors, while their fellow-workers made good their absence from the factory by doing double shifts. Not content with tractor repair, the mechanics listed the faults they found in the new Soviet-made tractor and published them. Two weeks later I attended an investigation in which the chief of production of the Putilov Tractor Works was called before the attorney general of Russia, informed that he had committed a serious crime by injuring the faith of the Soviet peasants in Soviet industry, and that not another tractor could leave his works until the quality was improved. Incidentally, our drive saved the flax-sowing of Moscow province that year—a gift of Moscow's city workers to the farms.

The Red Army also turned out to help. I have seen its trained man-power go down a field like clockwork, starting and stopping to bugles, while the peasants strove to copy its precision. Every farm lad who returned from two years military service came back a qualified expert in some branch of modern farming, thereby winning for the Red Army the nickname "The Peasants' University."

Short winter courses were opened in every city for the surrounding farmers. In the city of Omsk in Siberia in the single winter of 1929-30 I saw 20,000 farm men and women taking three months' courses in every specialty from bookkeeping to tractor driving, handling cows or chickens or managing a 50,000 acre farm. The Russian farm population got the habit of universal study for adults, which they never afterwards dropped.

Kulak Opposition

Another difficulty was the fierce opposition put up by the kulaks. Their financial dominance of rural life was being broken by the co-operatives and they fought them by means ranging from rumor-mongering to arson and murder. They poured kerosene on tractors and burned them; they set fire to collective farm barns when all the animals were in the stalls, and started deadly epidemics among the cattle. They mutilated or murdered farm organizers and government agents. Some of the more reactionary priests took a hand, denouncing the collective

farms as "godless" because they no longer farmed by saints' days, or as "immoral breakers of homes," because in them old and young were equal, upsetting the patriarchal family rule of the Old Man. In the collective farm the young men, fresh from farm schools, had a vote as good as their fathers,' while hard-working wives collected more income than husbands who drank or idled. To the backward this seemed the breakdown of all morality; but the great majority hailed it as the road to freedom and to life.

Kulak sabotage reached such a pitch that there was practically a state of war in many villages. Laws were passed permitting the deportation of kulaks on petition from any village that had adopted "wholesale collectivization," i.e. where nearly everyone had joined the collective farm. Such villages held general meetings of all inhabitants, and called before them the local kulaks for questioning and judgment. Most kulaks were merely warned but a total of several hundred thousand were listed for deportation. County authorities checked the list to guard against grudge-listing. Deportees were either sent with their families and some livestock to pioneer farming regions or to construction jobs in the Urals and Siberia where they worked at regular wages. After three years they were allowed to work where they chose, for by that time the organization of the collective farms had become secure. Russians believe that without these deportations, the early collectives might have collapsed under their difficulties, leading to general famine and exposing a weakened nation to invasion from abroad. It was brought out in the Moscow trials that the enemies of the USSR were utilizing the kulaks to bring about just this.

1932—The Critical Year

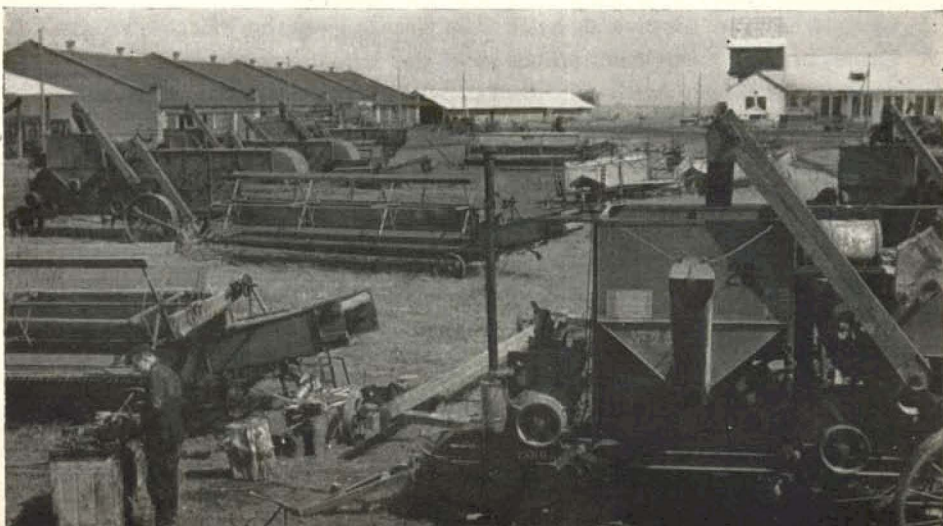
The worst emergency came in 1932, a year of drought. This, added to other difficulties of the new farming's first stages, caused a serious grain shortage. In many Ukrainian fields the discouraged farmers simply failed to gather their harvest. In many cases, disgruntled kulaks sought to further worsen conditions by refusing to gather more than they needed for themselves. The government awoke to the real situation when the unreaped grain was under the snow. Then it took drastic measures. The farms everywhere owed the government grain in payment for the use of the tractors and other machinery, for which they paid rental in kind. For two years, the government had been lenient in collecting, knowing the difficulties of the farms. In 1932 they en-

forced collection to secure the grain needed to ration the entire country, including the defaulting farms, and (a fact not realized at the time) to build up reserves against the threat of invasion by Japan, which had entered Manchuria and was probing the Soviet frontier.

The year 1932-33 was described abroad as a man-made famine in which Stalin starved peasants for refusing to join collective farms, ignoring the fact that the peasants had already joined the collectives, and that drought had piled upon other difficulties to produce shortages. The government took from the farmers only what they owed on their contracts and used what was collected to save the whole country, including the farmers. Statistics show no decline in population during the collectivization period, 1930-34, and no tremendous rise in deaths from hunger or any other cause. The fall in the rate of population increase was comparable to that in the United States which was passing through its own difficulties in the same period. Facts about the grain shortage were concealed for a year by Soviet censorship lest knowledge of Soviet internal difficulties should provoke an attack by Japan.

In the summer following the critical year of 1932, the help of the Red Army and the city workers to the farms reached its maximum in what was considered a national emergency. All these methods brought the country to the good harvest of 1933. By that time, better farm practice and increased machinery won final victory. There has never been a harvest failure since.

Agricultural machinery park of a typical Machine and Tractor Station (MTS) in the Ukraine.



V

Security on the Soil

THE years 1930-33 will go down in mankind's story as a turning-point in the farm history of the world. In those four earth-shaking years the Soviet Union changed over from a country of badly tilled farm strips and frequent famines to collective farms without crop failures—the largest farm units in the world. By this change the Russian farmers won the dream of centuries—security on the soil.

Security on the soil. From drought, from floods, from mortgages, from market uncertainties, from the chances of nature and the exploitations of man. Even to attain fragments of such security, men in all ages have struggled, emigrated, pioneered—and only a few won the fragments!

What is the basis of the Russian farmers' security?

First of all, they cannot lose their land by foreclosure. The lands of the collective farms are not subject to sale, lease or mortgage; they are legally public domain, granted by the government to the collective farmers "without payment and without time limit, that is, forever" as the Soviet Constitution words it. Farms may be enlarged by the entrance of new members or the reclamation of new land. As long as the farmers use their land, it cannot be diminished. When whole villages have to be moved, as for the building of the Moscow-Volga Canal, or to prevent contamination of the Moscow water system, it is done by agreement with the farmers, who receive an equal or greater amount of land in return.

The Soviet farmers thus pay nothing for land. Neither do they go into debt for heavy machinery, which they secure on a rental basis, paid in kind, from a unique institution, known as the Machine and Tractor Station. This is a government-owned enterprise which services a whole district with machine-power, working the machines far more continuously than is done on American farms. In this way overhead costs are cut on machinery. The collective farmers invest the greater

part of their surplus, not in depreciating machinery but in livestock, orchards or other diversifications of farming, which produce increasing return.

Security against Market Fluctuations

Security against collapse of markets is attained by advance sales. Each farm has a minimum quota which it is expected to sell to the government at fixed price; from this the government feeds the army and some of the heavy industry. The rest of the crop is also contracted in various ways, to municipalities, factory dining-rooms or universities, usually at a somewhat higher price. If the crop runs higher than expected, the government stands ready to absorb as much as the farmers wish to sell at the fixed price, which protects the farmers against loss. The farmers have the option of disposing of their surplus to private consumers through collective farm markets in the cities. There are no middlemen and speculation in food is a serious crime. If the government has to absorb an over-abundance of any crop, the next year's contracts are adjusted to encourage different crops. No farmer has to guess what crops will be profitable; each crop is made profitable by advance plan. Prices are so adjusted that the crops which the country most needs and which the region is best adapted to produce, are the most profitable.

Losses through "Acts of God"

No Soviet farmer ever faces the ethical problem posed to me by an American farmer some years ago. He told me that floods had destroyed the crops of neighboring districts so that the profits from his own crop rose. "So we must be pleased when our brother farmers go bankrupt, because our profits increase. And we must be sad when there is food enough for the hungry because our profits drop!" There is no such conflict between individual good and community good in the Soviet Union. The bigger the harvest, the more food and the more profits for everybody. It is to everybody's advantage everywhere to produce a maximum crop.

Crop losses through "acts of God" are minimized by better farm practice and are covered by universal farm insurance. The amount of insurance varies. It is compulsory to insure at least for a minimum

harvest. This costs only one per cent and provides that even in the worst drought, flood or hail the farmer will get a return on which he can carry on. The more progressive farms are not content with this minimum insurance, but may insure for higher amounts up to a bumper crop at a cost of two or three per cent.

Thus the collective farms are secure against everything except inner disorganization through laziness or incompetence. Safeguards are provided even against this, by the system of achievement payments, which encourage energy and initiative. This question of incentive and rewards for work takes us into the whole question of the relation of the individual farming family to the larger collective farm.

What the Farming Family Gets

Security is all very well, but what about freedom? How much individual choice has the farming family? What chance to develop special talents? What chance to advance through preeminence in work? What, after all, does the farmer family get from participation in the collective farm?

First of all, the collective farm is democratically governed. Every farm worker over the age of sixteen has equal voice and vote in the general meeting, which elects the management and decides all basic questions, such as the farm plan, the crop rotation and the division of work. Members specialize according to choice and aptitude. All jobs are listed in a scale of values according to their difficulty and the skill required. The basic unit of pay is known as the "work-day," which is a piece-work unit based on eight hours average work of a semi-skilled man. Eight hours by a skilled worker such as a tractor-driver may count as two work days, while higher skills may be paid for at several days quota in a single day. Jobs are checked by quantity and quality, and each day's accomplishment is entered in the member's work-book. His harvest income depends on his actual work.

Collective farmers are not wage-workers, though their income is determined much like wages.* They are joint owners of the collective farm property. Their "work-day" is valued not in money but in harvest-

* Employees of the Machine and Tractor Sections are wage-workers, as are those of the state farms, or *sovkhosi*. The latter play an important role in large scale farming, in experimental farming, and as training centers. But since they do not represent the way of life of the vast majority of Soviet farmers, they will not be dealt with in this pamphlet.

shares. Each member draws advances during the year to feed his family. His full income is known only when all the harvest is in. Then, after taxes and machine rentals are paid, seed and fodder reserves set aside, and appropriations made for permanent improvements, for insurance, for cultural needs (the total, however, not exceeding 40 per cent of the cash income), the remainder is divided among the members, in proportion to the "work-days," they have earned. This gives incentive to earn many "work-days," and an equally strong incentive to increase the farms' general prosperity which determines the value of each "work-day."

Machinery without Grief

Machines, on the Soviet farms, as everywhere else, rapidly released labor. In other lands this would have created millions of unemployed. Collective farmers, owning the lands of their village, easily found use for all possible labor power. The first result was improvement and diversification of farming. To the routine of rye and wheat were added profitable industrial crops, orchards, new vegetables. Model dairy-farms and chicken-ranches were developed, which not only increased the profit of the collective farm but supplied pure bred stock for the households of members. Collective farms began to build power-plants to light their villages, irrigation systems, air-fields for the educational airplanes of the Commissariat of Agriculture, laboratories for farm experiment. In some places movements started for "model farm-cities," villages with all the improvements of the big towns. The labor released by machines, instead of spilling into a reservoir of unemployed, was organized to raise the standard of living of the countryside.

Each family, besides its share in the collective farm fields, has its private garden and orchard patch, varying from half an acre to three acres, and its family livestock, such as cow, sheep, and chickens, whose products they could use for themselves or sell as they saw fit. As collectives gained experience and stability, this individual husbandry often diminished in importance, by the farmers own choice. Many farmers said that, after a day's work in the fields, they preferred to dress up and go to the movies "like city folk." Other farmers chose to make additional income or to work out some hobby in these private gardens. In today's war emergency, both the collective fields and the private gardens are farmed at high pressure.

VI

A New Farm Folk

THE new farm life has produced what Stalin described as "an entirely new peasantry such as the world has not seen." As the farm as a whole goes in for diversification, each job in it becomes a specialty. The farmer-specialists compete for excellence; they break national and even world records. Their achievements become front page news in the Soviet press and are rewarded with government decorations and large prizes, for these achievements are not private matters but increase the total wealth of the nation.

The Record Breakers

In 1935 a tractor-driver named Bupartsev began driving in high gear for harrowing, then for sowing and finally for harvesting. His methods, which demanded exceptional attention to the ground, were copied by thousands within a year. A girl swineherd made a "pledge" to the country to raise 3600 pounds of offspring per sow in the year. She rigged up special pens in the pastures so that the animals would not lose weight by needless travel; she supervised their food, drink and regime with meticulous care. She too became a national heroine.

(Americans who have been privileged to see the delightful Soviet musical film, "They Met in Moscow," have seen her counterpart in the heroine of this picture.)

A harvester-combine normally harvests 40 to 50 acres per day; Russian champions in 1936 got 125 to 150 acres by adding night work. Then three women operators of harvester-combines broke world records by harvesting a total of 248, 252, and 274 acres respectively in a single twenty-four hours. The chief inspector of the Rostov Farm Machinery Works went to their farm to check the record; he didn't believe it until he saw it done on the field.

The record was made by team-work. The tractor—a crawler type—moved at high gear with a specially stepped-up motor. The combine operator had installed a special cooling system for her motor, and had trained herself to hear all parts of the machine from her post on the

bridge. The serving truck loaded while moving alongside the moving combine. They ran on strict schedule: one minute to load, five minutes to deliver to the grain point a mile and a half away, four minutes to return. Drivers and operators changed places at the end of shifts without stopping the machinery. Projectors and flood-lights made night work as easy as day work. After the run the combine was found in good condition, except that it had shaken off bolts. The record makers were devising new attachments for taking on gasoline and oil without stopping the machines. These women had been illiterate farmhands a few years before.

Achievement Wins Honors

People like this get elected to the highest government bodies. Two hundred and sixty-one were deputies in the Constitutional Congress which adopted the new national constitution in 1936. There they listed themselves as "combine-operators, tractor-drivers, pig-raisers, dairy-managers, cotton-pickers, sugar-beet raisers" and the like. In earlier congresses farmers had listed themselves under the old peasant term of "bread growers." Farm specialization had established itself.

Among them was the sugar-beet celebrity, Maria Demchenko, who started the movement for raising twenty tons of beets per acre. Maria's brigade had hoed the fields nine times, cleared them of moths eight times, fought drought with the aid of the local fire department, which poured thousands of buckets of water on the fields. Yet, the following year Christina Baidich, mother of four children, doubled the record to forty tons per acre! She too, sat in the Constitutional Congress. There was also Kovardak, the Kazakh girl, who plowed 12,812 acres in a single year with her caterpillar tractor, and Rakhmatov, not long since a half-starved Uzbek farmhand, who, as brigade-leader on a cooperative cotton farm, raised the yield from the usual Uzbek standard of $1\frac{3}{5}$ bales per acre to the incredible figure of 16 bales. In 1929 the cotton yield in the USSR was at the American average of about $\frac{2}{5}$ of a bale per acre. In 1937, the average Soviet yield had doubled, while the record-winning Republic—that of the yellow-skinned Kirghiz—had an average yield of $2\frac{4}{5}$ bales per acre. Since "Kirghiz" cotton is almost all grown on irrigated land, the fair comparison here would be with California cotton, also largely irrigated, which averages 1 to $1\frac{1}{3}$ bales per acre.

The Better Life

Better farm methods, as exemplified by the pace-setting record-breakers noted above, were reflected also in increased income. Collective farm earnings grew from 4,568,000,000 rubles in 1932 to 18,798,000,000 in 1938. These figures mean little to Americans; too many factors have to be considered for these rubles to be translatable into dollars. They were translatable into silk dresses, perfumes, musical instruments, bicycles, cameras, phonographs, alarm clocks, radios which appeared in increasing profusion in Russian villages where formerly even bedsheets and table dishes were rarely seen. Purchases of clothing and household goods doubled in the farm areas between 1932 and 1938; purchases of "cultural goods" such as books and musical instruments increased five-fold. I have met Russian farm families who built a new house out of two or three harvests. These purchases are made through the trading cooperatives, which have 40 million members, and carry on all the trade of rural Russia.

In peace time collective farmers go in for a good deal of travel. They are not tied by year-round work as on the family farm. They take vacations, usually in winter. The big health resorts of the Crimea and Caucasus—in the years before the present war—made extensive winter reservations for the collective farms.

Part of the farmers' income goes for music, art, drama, study of all kinds. Almost every farm has its drama group and music circle, and most farmers study something. The farms have 95,275 rural club buildings, used for lectures, concerts and dramatic performances. Amateur groups produce modern plays, Russian and foreign classics such as Moliere and Shakespeare. There are 13,000 well equipped scientific laboratories on collective farms, besides tens of thousands of small "cottage laboratories."

Thus the farmers tie in with the educational movements of the nation. The farm laboratories are outposts of the experimental work of the Commissariat of Agriculture, planning the farming of a continent. The music circles have connections with conservatories of music in the cities and leading conservatories have branches in the farming sections. Theater troupes from large centers tour the farm theaters. Amateur dramatic and musical groups from the farms take part in great folk festivals through which the art of the land is interchanged. Talented children, discovered through these festivals, get



Studying wheat germination in the "cottage laboratory" of a collective farm in the Chuvash Autonomous Republic.

scholarships in the Moscow Conservatory of Music or in training schools of world renowned Moscow theaters.

Thus through collective farming the mediaeval Russian peasant became in less than a decade a scientific farmer, a reader of books and listener to radio—a citizen of the modern world.

No More "Country vs. Town"

But these achievements were not secured by the farmers in isolation. They were attained with the help of the industrial workers and the government in the "cooperating country" that Russia has become.

From the beginning, Soviet leaders set out to eradicate the age-old antagonism between the farmers and the city workers. Hitler used this antagonism to build his Nazi-fascism, gaining the support of farmers through their suspicion of city workers. This suspicion even exists to a certain extent in America, though the traditional antagonism is not as deep-rooted. In tsarist Russia the antagonism was very great. Soviet leaders broke it down by a system of get-together activities and mutual help. This could be done because, with jointly owned wealth, the interests of farmers and city workers do not conflict. Mechanics volunteering to repair farm tractors know that they are not helping a few farmers get rich at the expense of others, but—through collective farming—are increasing the wealth of the nation, so that they themselves will get more food and clothes.

VII

Farming a Continent

THE Soviet Union develops all its productive resources, both of farms and of factory, by joint planning. The Five-Year Plans applied to agriculture as well as industry, and collective farming gave the farmers an active share in this planning. It became possible to farm the continent as a whole, much as one man farms his family acres.

The "Farm Plan"

Farming a continent starts with the "Farm Plan" in each local collective farm. This is a formidable document of twenty or thirty printed pages, accompanied by elaborate charts, discussed in detail with government experts and then adopted by the general meeting of the farm membership. Its adoption takes commonly several months of discussion and amendment, usually the winter months. When adopted, approved by the county and registered with the county authorities, it has the force of law, and becomes the basis on which the nationwide plans are built. The local farm's success is thenceforth judged by the extent to which it fulfills or surpasses its Plan.

The "Plan" begins with a survey of the farm's lands and their general nature. Then come the farm's people, number of families, of able-bodied workers, old folks and children, and the expected normal population increase through births for many years to come. This is followed by the number of all kinds of livestock and their expected increase, by natural means and by purchase. The reason for this is that the farm plans to supply its members and their livestock with basic food, in addition to its cash crops. Questions of the amount of land to be sown to cash crops are taken up with the government, and are decided on the basis of an adjustment between the government's demands from this particular region and the conditions of the individual farm.

On the basis of all this, the Plan fixes the crop rotation, considers the number of work-days needed in comparison with the able-bodied members, and takes up projects of permanent improvement to utilize surplus labor-power.

The Machine and Tractor Station

The connection between collective farms is supplied by that unique institution, the Machine and Tractor Station, which came into existence in 1930 out of the dire need of farms for machinery which they were unable to buy and incompetent to use.

I saw the first of these stations in January of that year. On the boundless steppe not far from Odessa stood a giant machine-shop surrounded by garages holding 200 tractors, with full complement of tractor-drawn machines. White cottages housed mechanics and working personnel. This station was the center of power-farming for one hundred and fifty thousand acres. It supplied machines on contract to sixty-seven villages.

The sixty-seven villages were of four nationalities: Russian, Ukrainian, German and Jewish. They had different methods and problems and made different contracts with the MTS. A German farm at Naikova, had plenty of horses, but used tractors to break virgin soil. A new Jewish collective at Felix, used tractors for most operations. Each farm paid in grain after harvest for the machine-power used. Charges were reckoned at cost, for the MTS was self-supporting, but not profit-making. Tractors went in spring to the villages and returned to the MTS in winter for over-hauling. Each tractor had two or three full-time drivers, who kept their machines going night and day. Thus all these sixty-seven villages, with different needs and methods, were knit into one great power-farming system by the MTS.

The Machine and Tractor Station became at once a district agricultural headquarters. It served as such for farm experts touring the villages to help in crop rotation plans. It became the center for winter courses for farmers. It became the center for farm credits. In its very first year the MTS near Odessa was buying selected seed and importing French vines, young apple trees, pure-bred cows, sheep, pigs and chickens for the sixty-seven villages it served.

By 1937, a net-work of thousands of MTS covered the country, servicing practically all the collective farms with machine power.

This system gave the farmers machine-power handled by experts, without heavy overhead, and payable in kind at harvest. It gave the government an annual grain income without middlemen, in return for the use of machines.

By 1937 the shortage of machine power was over. Half a million tractors brought power farming to all the collective farm fields. This is only about a third as many as in the United States, but Russian tractors average 2500 hours of work annually, as against an average American use of 400 to 600 hours per year. "Hardly more than the productivity of a horse," say the Russians, shocked at the idleness of precious machinery on American family-sized farms. Russian machines work day and night, and specialize on the heavier operations, leaving lighter work to horses. In 1938 tractors did 71.5 per cent of all the plowing and 56.7 per cent of all the sowing, as against one per cent of the plowing and two-tenths per cent of the sowing ten years before.

The increase of harvester-combines has been even more spectacular. The first appeared in North Caucasus in 1925. Fourteen years later Russia was using 168,000, more than twice as many as were being used in all the rest of the world. Outside the USSR the chief user of combines is the United States, which has somewhat more than 60,000. Germany, France and England together have less than two hundred. In Russia half the total grain acreage is harvested by combines, while over 95 per cent is harvested by some kind of complex machine.

"Russia and America Farm"

"Russia and America farm; the little nations of Europe garden," was the judgment passed by an American grain farmer who made a survey of European agriculture.

Ten years ago the Russian harvester-combine copied the American. Today the Russians make their own, with many improvements. Theirs is sturdier than ours, more expensive at first cost, built for maximum steady use. It is developed by constant experiment. One summer I met in the Soviet harvest fields a scientific expedition testing forty-five new varieties of harvesting machines, many of which were the result of farmers' suggestions. The expedition comprised 10 scientists, 12 economists, 15 agricultural experts, 100 engineers and technicians and more than a hundred machine operators. It was only one of four such

expeditions in the grain harvest that year. These experts tested every proposed machine, as a whole and in every part, for durability, productivity, operating costs and effect on crops. The tests determined what machines should go into mass production the following year.

Under the tsar, Russia was subject to frequent famine; in twenty years from 1890 to 1910 her statisticians counted four good harvests, thirteen poor harvests, three famine years. Under collective farming from 1933 onward, every harvest was higher than the kind formerly accounted good. The best pre-revolutionary harvests reached 80,000,000 metric tons of grain, but even dry years after 1933 gave over 90,000,000 tons, while 1937, a year of good weather, gave the spectacular total of 113,000,000 metric tons of grain.

Leading the World

President Kalinin once stated that in industrial production the Soviet Union copies the technique of more advanced nations. "But in farming we are leaders on a new road. Here we go before all nations!"

This proud boast is borne out by many concrete facts. Nowhere is scientific discovery in farming more active than in the USSR. One plant specialist has developed a variety of perennial wheat, which planted in the autumn of 1939, produced four crops in two years with a total of 83 bushels per acre. Other specialists developed "vernalization," a way of treating seed so that it goes into the ground almost sprouted and ripens very much earlier. By this method winter wheat can be planted in spring, while other kinds of grain can be brought to harvest before the deadly summer winds of Russia's dry areas.

Aviation in farming is one spectacular new development. This began in the first stages of collective farming, when farm newspapers sent out small educational airplanes. The *Peasants' Gazette* maintained five such planes which worked their way north in sowing and harvest, landing on the farm fields to spread word of new methods.

By 1934 a Farm Aviation Trust operated twelve months a year, sowing pine trees in January snows of Siberia, sowing sand oats in deserts to bind the sand, sowing extra-early grain in dry regions direct into melting snow and soft mud where tractors could not travel, sowing rice in North Caucasus, fighting plant pests, forest pests and malarial mosquitoes on a tremendous scale. Farm aviation takes day-old chicks from incubator stations to farms a hundred miles away; it carries

tomato and cabbage seedlings that are started in the warm Black Sea region, to ripen near Moscow or Leningrad. One major task is pest-fighting. In 1933 airplanes cleared a million acres of malarial mosquitoes by dusting swamps with Paris green; and in the same year cleared 800,000 acres of grasshoppers and 127,000 acres of boll weevil.

Moving Back the Desert

As exciting as farm aviation is the reclamation of great deserts that lie between Europe and Asia. Years ago, when I lay sick with typhus in the Volga famine of 1921, I read in H. G. Wells' "Outline of History" that all this region is slowly and inevitably drying up in the long retreat of earth's Glacial Age. It sounded as fated as the march of the stars and the circling of planets.

Soviet scientists today have challenged this inevitability. They are moving the desert back. A great belt of trees hundreds of miles long has been planted to shield Southeastern Europe from the hot desert winds. In regions where over-grazing disintegrates the dusty soil, the government regulates pasturage. Hardy plants have been developed whose deep roots pierce far down to subsoil moisture these are sown from the air to bind the sands. By all these means one of the worst dust-bowls of Asia is being brought back to soil stability. Our "shelter belt" of trees and soil conservation measures are bringing similar results in America.

New and picturesque farm practices have developed in the dry regions. One of these is snow-retention, widely practiced on the grain farms of the Trans-Volga steppe. The scanty winter snows, almost the only moisture of this region, are kept from blowing away by fences, and by plowing the snow in winter at right angles to the wind. Soviet farmers even grow wheat in parts of the desolate Karakum Desert. Three varieties have been developed which can be grown where rainfall does not exceed 1.9 inches per year.

Trench-planting is another method of desert-farming. It was found that many seemingly waterless areas have reserves of moisture some distance below the surface. Trenches with sloping sides were dug and a thin layer of humus soil placed on the bottom, in which crops were planted. The trenches protect the plants from winds; they are also cooler by day and warmer by night than the open desert. Potatoes, cabbage, tomatoes, onions, eggplant, carrots, melons are among the

vegetables that have been thus grown. Even orchards and vineyards have been laid out in such trenches, further protected by barriers of poplar and tamarisk trees.

Irrigation, of course, is widely used in the dry regions. In Central Asia it is of ancient origin, but enthusiastic collective farmers have extended it very widely by their winter labor, in addition to the great canals that the government has built. Elsewhere it has been introduced for special emergencies. I recall the dry summer in Kabardino-Balkaria, a small state of the North Caucasus, when men and women turned out to dig hundreds of miles of ditches to the mountain torrents, using the enthusiastic slogan: "We have mountains; we don't need rain!" The most ambitious irrigation project plans to divert the Amu Darya, one of Asia's great rivers, back to its ancient channel, where deep silt awaits the quickening touch of water to become richer than the valley of the Nile.

Conquering the Arctic with Farms

The farm achievement most famed outside the Soviet Union is the conquest of the Arctic, where the celebrated northern farms create a food base for the strategically important Great Northern Sea Route along the Arctic Coast of Europe and Asia. The last of the Russian tsars sent an adjutant to investigate the possibilities of the Arctic. He reported: "Farming, like every other pursuit, is impossible in this eternal night." The Soviet people attacked the Arctic as a national adventure. They invented special airplanes to scout its areas. They set up weather stations along the Arctic coast. Trained men went north with stump-pulling machines, bush-cutters, bog-plows to clear the jungles. Scientists developed special plants for the north.

Crops are raised today where once the reindeer was not sure of surviving. The most northerly farm in the world is a Soviet farm lying 200 miles beyond the Arctic Circle. A rust-proof potato has been grown whose leaves are green at nine degrees below freezing. Dozens of agricultural stations raise wheat, oats, barley, potatoes and many vegetables in polar regions, and have extended their work in wartime. In 1942 new varieties of flax, hemp and sugar beets were planted in the northern stations with success.

Russia's collective farms have transformed a continent in the past ten years in accordance with a plan. Wheat, rice and cotton moved

north to new areas; potatoes, a cold country crop, were trained to move south. Transportation problems were cut by developing self-sufficient areas. New crops were introduced, such as citrus fruits, tea, and rubber bearing plants.

Rubber a New Crop

An outstanding example of the introduction of a new crop is the cultivation of natural rubber from a weed that formerly grew wild in the mountains of Central Asia.

Interest in the possibilities of natural rubber production began with the first plans for the industrialization of the Soviet Union. For modern industry is unthinkable without rubber. It is essential in the chemical industries, in electricity, and in automotive and aircraft production.

There were no home sources of supply, and the rubber output that virtually the whole world drew upon came from the East Indies and Southeast Asia. As this war has shown, these sources could be cut off by an aggressor power.

To meet this problem, the Soviet Government embarked on two ventures—the manufacture of synthetic rubber and the planting of crops yielding rubber.

In synthetic rubber production the Soviets have had especially outstanding success.

However, synthetic rubber remains more expensive than natural rubber and is not as satisfactory for a number of industrial uses. Therefore, Soviet industry has turned to native *kauchkonossi* or rubber bearing plants, the search for which began simultaneously with the research in synthetic rubber. In the search for natural rubber, known plants from abroad were cultivated and studied, but it was the native plants that gave the best results.

On January 17, 1931, there came into being a committee of scientists, one of whose chief movers was Academician N. I. Vavilov. Under the direction of this committee the rubber hunt was turned into a directed and coordinated nation-wide research.

In the next three years some thirty major expeditions were organized which collected and studied nearly 5,000 specimens. These came from over 1,000 species belonging to 316 plant genera. Of the nearly 5,000 specimens collected, over 600 contained at least a trace of rubber. The

plant now being cultivated, kok sagyz, was discovered by an expedition headed by one Bukhanevich, a worker in a Moscow aniline dye factory.

Thirteen farms undertook the experimental cultivation of kok sagyz and other plants discovered, and imported plants like the Mexican guayule and the dandelion seed developed in this country by Edison. Research institutions in rubber planting were organized at Moscow and Margoshev, with branches in the Ukraine, the Caucasus and Central Asia.

By 1935 the Department had produced enough seeds and plants to cover the following acreages: 4,270 acres to kok sagyz; 2,770 acres to tau sagyz; 1,300 to guayule; 800 acres to a plant called vatochnik; and 320 acres to a plant called evkommia.

Actually the plantings that year were the final stage of a battle of the species. The winner was kok sagyz.

Large-scale planting of kok sagyz had begun in 1933 and from this large-scale planting information had poured in. The scientifically minded, practical farmers on the Soviet collectives poured in reports to the research centers, supplying data which would have taken long years to work out in the laboratories.

It is such collaboration between planter in the field and researcher in the field station that made kok sagyz, like other Soviet agricultural triumphs, possible. Among the great names in the development of kok sagyz, are those of plain people like the Moscow dye worker Bukhanevich; the collective farm chairman, Shkorov; the woman collective farm brigade leader, Parmuzina.

It was found that the rubber in kok sagyz averaged four and one-half per cent of the root weight; that it can be extracted the first year after growth, which makes it highly important in the war emergency years; and that the rubber content gains both in quantity and quality if the root is permitted another one or two years' growth. So far, the best method found for extraction is to dry the root, powder it and then by gravity or centrifuging, separating the rubber out in a water or alkaline solution.

These methods are so similar to beet sugar extraction that it has been possible to turn sugar mills into rubber mills overnight. In this respect also, kok sagyz fitted conveniently into the wartime picture.

As the war crisis approached, the importance of rubber was recognized in the establishment of a new, special commissariat devoted to

extending rubber production, both synthetic and natural. Established in 1941, the new commissariat was headed by Tikhon Borisovich Mitrokhin.

By that time kok sagyz had become an important crop. In 1941, 170,000 acres were under kok sagyz and the plan for 1942 called for a million acres. Under the war impetus the acreage total has probably been exceeded.

In 1941 the average yield per acre was thirty pounds, but yields as high as 150 pounds had been obtained. As seed stocks and cultivation methods are improved, higher figures may be expected.

These results have been put at the disposal of its allies by the Soviet government.

Kok sagyz seed has been sent by plane to America and Canada, to New Zealand, Australia, India and Great Britain.

In England the plant is being intensively studied in experimental plantings in the Royal Botanical Gardens at Kew, and seed is being distributed for experimental plantings in twenty other localities throughout the British Isles to test the growth in every variety of soil and climatic conditions on the islands.

Thus kok sagyz is acting in its own way as a binder in the solidarity of the United Nations.

Their lands and homes devastated by the Germans, millions of collective farmers had to take refuge in dugouts such as this.



VIII

Restoring the Liberated Areas

WE have seen how the collective farms in the front line districts met the test of war. We have seen how the collective farms in the rest of the country won the battle against famine. The greatest miracle of all has been the swift return to life of the ravaged Ukrainian fields, almost completely liberated in the spring of 1944. The guerrilla fighters who left their plows for guns are back at their plows again, turning up long furrows of earth mixed now with the blood and the bones of their brothers. Far in the rear the farmers who fought the battle of production so heroically took on without question the added task of sharing their machinery and their cattle with those who have started life anew in the reoccupied areas.

On August 21, 1943, at the height of the Red Army's summer offensive, a decree was issued outlining in detail measures for the restoration of liberated territory covering 272,150 square miles. These measures were to be carried out by the federal and local government in cooperation with the people themselves.

The Plan Is Made

The steps outlined in this decree were admirably summarized by E. C. Ropes in the *Foreign Commerce Weekly* for April 22, 1944, as follows:

- I. Return to the collective farms of the livestock evacuated to the East.
- II. The per capita increase of livestock on the farms of the liberated areas.
- III. The restoration of poultry raising on the collective farms.
- IV. Exemptions in connection with deliveries of agricultural products to the state.
- V. Relief in seed for farms for the fall planting of 1943.

- VI. Restoration of machine-tractor stations and machine-tractor repair shops.
- VII. Assistance in the restoration and building of dwellings for farmers, etc.
- VIII. Restoration of railroad stations, railroad sheds and other structures.
- IX. Grant of allotment garden plots and exemption from obligatory deliveries for railroad workers.
- X. The organization for children of soldiers and guerrillas, and for orphans of the German occupation, of military schools, trade schools, children's homes, and receiving and distributing stations.

Exact steps were worked out for the fulfillment of each of these points.

As regards the restocking of these areas with cattle, livestock evacuated eastward and their progeny in the intervening period were to be returned together with additional livestock to be supplied from the unoccupied areas. The totals amounted to 197,166 cattle, 341,421 sheep and goats, and 52,939 horses.

Measures were outlined for the transportation of the livestock, erection of transfer stations, veterinary inspection on arrival and distribution to the farms left destitute by the retreating Germans. Provision of cows to individual collective farm members was arranged for with equal care. For the restoration of poultry farms 500,000 breeding birds and 9,600,000 incubator chicks were to be provided by the Government. Simultaneous provisions were made for building materials to construct new hatcheries and for fuel to run them. Other points were similarly worked out to the last detail.

Achievement Report

On February 5, 1944, the committee charged with the supervision of this work published a report of its successful fulfillment, which is an amazing record of achievements in reconstruction carried on in the midst of the greatest battles of all time.

The plan for the partial restoration of livestock was more than fulfilled. In order to understand the restoration measures in livestock, the extent of the devastation must be understood. For, disastrous as the Nazi invasion was to crops, it was even more so to livestock. This

is made clear in a recent article on agricultural rehabilitation by Lazar Volin and Sylvia Goodstein.*

In the districts of the Ukraine liberated by late autumn, 1943, there remained only 6.5 per cent of the pre-war number of horses, 6.2 per cent of the cattle and 1.8 per cent of the sheep. The total amount of cattle successfully evacuated was not large.

Within less than a half a year over 1,723,00 head of cattle, including the re-evacuated, were restored to the liberated areas. To these were added more than 880,000 calves purchased by the Government from the east-central regions of the USSR. Many thousands more were contributed by the farmers themselves in the eastern regions.

Collective farms also received more than 1,600,000 cubic meters of timber for the restoration of farm buildings. The returned herds of cattle were well housed during the winter as a result. And in order to provide trained manpower to handle them and insure the healthy development of the livestock, 71 schools for veterinarians and their assistants and for specialists in animal husbandry were set up, five above plan. These schools graduated 8,402 experts.

The exemptions provided for collective farms as a whole and for individual farm families, either releasing them wholly from the obligation of making state deliveries, or reducing their quotas, were carried out according to the plan.

The provision for the distribution of seed for fall sowing fell a trifle short of fulfillment, but even so almost 100,000 metric tons of seed were allocated.

The plan for restoring the ruined machine and tractor stations was carried out with particular success. The number restored was 575, and 978 repair shops were set up. Over six thousand** evacuated tractors were returned (there were 90,000 tractors in the Ukraine in 1940), as well as other necessary farm machinery and implements, in excess of the plan proposed. Along with these went building materials, spare parts, fuel, lubricants, and skilled labor. The latter included not only 3,587 trained farm workers and specialists returned to their homes, but 600 new farm school graduates assigned to the most needy districts.

* See "The USSR in Reconstruction," American Russian Institute, New York, 1944.

** By June, 1944, it was reported that since the expulsion of the invaders the liberated regions had received over 22,000 tractors.

New housing was especially vital because of the systematic demolition carried out by the retreating Germans who, when they had time, razed villages completely to the ground. The houses newly constructed or reconstructed numbered 326,461 in towns and workers' settlements, and 266,050 in the villages. This enabled more than 1,500,000 people to move from dugouts and damaged buildings into livable dwellings. To facilitate construction, local plants to manufacture building materials were set up according to plan, and building loans up to 10,000 rubles to each family were made by the Agricultural Bank. No less imposing are the figures relating to the restoration of railway buildings, stations and homes for railroad workers.

Special trade schools were started in the liberated areas accommodating 9,000 children. In addition nine Suvorov military schools and children's homes accommodating more than 14,000 orphaned youngsters were opened.

The best available buildings were turned over for the use of these children's homes. The collective farmers contributed building materials, food supplies and household goods. Thousands of acres of land were allotted to the schools on which they are growing their own food supplies.

Helping Hands from Afar

One of the most striking aspects of this whole process of restoration is the way in which collective farms in the interior have voluntarily taken upon themselves the additional burden of sharing their machinery, their livestock and their products, so greatly needed by themselves, with those whose need is still greater. From all over the country supplementary aid, over and above that provided for in the plan, has been pouring in a steady stream into the liberated areas.

A favorite method for carrying this out is for whole regions to take patronage over the collective farms of a specified area. In many cases a collective farm will take the responsibility of helping to get a specified collective farm on its feet. The three southern republics of Tadzhikistan, Georgia and Azerbaidzhan, which are high on the government honors list for their farm work during the war, have been in the forefront of this movement. Georgia, for example, has taken patronage over all the collective farms of the Stavropol and Krasnodar regions. This means that not only are they sending everything they can to help

now, but they are cultivating additional plots whose products will be sent them later.

The farmers of the liberated regions have in turn proved themselves worthy of this generosity. To the rich Kuban section of the Krasnodar region, for example, where planting must be completed by April 15, spring came late in 1944, and the whole plan for plowing and sowing was threatened. The area had been stripped so bare by the Germans that almost all the seed planted had to be sent in from outside. Heavy rains turned the roads to bogs; but when trucks and carts stalled and floundered, the peasants themselves carried millions of pounds of seed grain to the fields on their backs in order that the sowing should be completed on time—and it was. And over the whole Ukraine this spring, there was not a single collective farm that didn't accomplish miracles. In the war-desolated southern Ukraine the plan was exceed by 12 per cent.

By June 1, 1944, the area sown to grain crops in the USSR as a whole exceeded the 1943 area by about 15,000,000 acres; in vegetables and potatoes by 2,500,000 acres. (Later figures indicated an increase of 30,000,000 acres in grain over last year.)

Soviet cultural workers are doing their part in the restoration of agriculture. The Soviet Government Art Committee organized concert and dramatic groups who toured the villages to help provide relaxation and keep up the morale of the farm workers as they toiled.

Maurice Hindus wrote recently of the inestimable contribution that is being made by women on the farms. Visiting the collectives in the Moscow province, Hindus was walking along a country road at midnight with a Soviet county agent, who pointed to a light in the distance and said:

"That's a girl operating her tractor by torchlight. Her crews are pledged to work 2,470 acres of land this season, with 15 h.p. tractor equipment, so it keeps the tractor going day and night. . . . Never before in this region did any tractor crew make such a high pledge. That's more than three times the pre-war average."

Where they haven't tractors, they use horses, and even cows are being broken in to harness and used for plowing and sowing. Some of the correspondents have written of seeing human beings themselves trying to pull plows.

New parts for tractors have been coming from the ruined Kharkov tractor plant since last November, just three months after the liberation of Kharkov. It is being restored with almost incredible speed. Its shattered machines, dug from the ruins are being rebuilt and by the end of the year will be turning out complete tractors again. Meantime hundreds of new workers are being trained for skilled jobs in the plant when it is in production again.

Specialists and Their Skills

A special concern of the government planning organizations has been the supplying of a sufficient number of agricultural specialists and skilled workers to the liberated areas. The director of the employment bureau of the People's Commissariat of Agriculture has been swamped with requests from Central Asia, Siberia, the Urals and other sections of the Soviet Union, from specialists and others eager to help in the rehabilitation program.

The problem is being met chiefly through a training program. During the winter of 1943-44, 3,000,000 collective farmers took intensive courses in scientific agriculture. Many thousands of experts were thus turned out by agricultural colleges all over the country. The agricultural colleges in the Rostov, Stalingrad, Krasnodar, Voronezh, Kharkov, Orel and other freed regions are being swiftly re-established, so that local people may be trained.

Moscow's agricultural colleges have organized special "refresher" courses for farmers from the liberated areas who are being returned from the fighting lines to their fields. They must learn new skills—how to restore fertility to soil that has been reduced to barren desert, to once rich fields now weed-ridden and torn by bombs and shells and trenches. Even the soil which the invaders tried to cultivate has deteriorated through the primitive methods applied by the Germans, and the sabotage practiced by the Russians who refused to be serfs.

Articles in the Soviet press indicate that the demands of reconstruction are creating new and higher standards of work for specialists. The former tendency which sometimes appeared toward over-emphasis on paper work and voluminous reports, is swiftly disappearing.

Thus, the gigantic plan for 1944 is well under way in all the liberated areas, as well as in the rear, providing for greatly extended seeded areas. Some of the crops which have "changed addresses," that

is, been introduced into new areas, have so liked their new homes that they remain. Elsewhere they are being returned to their old homes. In 1943 the yields of all crops but grain were above those of 1942, while production of vegetables and potatoes was above that of any pre-war year. Due to the extent of the devastation and the shortage of manpower and draft power on the farms, there can be no thought as yet of reaching pre-war acreage or productivity. But this year will show great increases in all crops, as the good Soviet land is returned to those who own and love it.

The Farms Beat Hitler

In this pamphlet I have tried to describe the new, modern type of farming that Hitler encountered in his attempt to conquer the Soviet Union and then use its resources to conquer the world.

On the battlefields Hitler's wehrmacht faced masters of mechanized war who had been trained on the Soviet Union's mechanized farms and factories. In the less known battle of hunger the integrated, collective farm system overcame the Nazi seizure of about a third of its food growing areas. The resourcefulness shown is little short of miraculous. The Soviet farmers won the battle of hunger. That victory was as decisive in its own way as the Battle of Stalingrad.



A Turkmenian schoolgirl helps bring in the barley harvest of a collective farm in her native republic.

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Published by

NATIONAL COUNCIL OF
AMERICAN-SOVIET FRIENDSHIP

232 Madison Avenue, New York 16, N. Y.

